Small Business Innovation Research/Small Business Tech Transfer

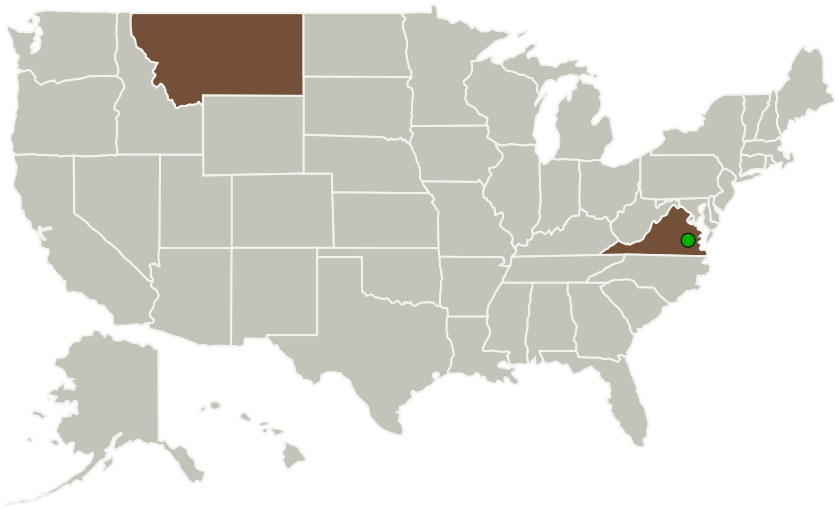
A Multi-Wavelength Seed Derived Laser for In-Situ Validation of Airborne Remote Sensing Instruments, Phase I

Completed Technology Project (2015 - 2015)

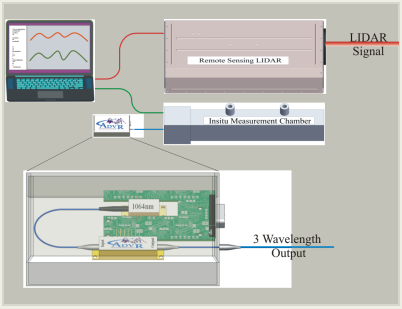
Project Introduction

This Phase I SBIR will establish the feasibility of developing a collinear three wavelength source for an in-situ, 1800, back scatter nephelometer. The three wavelength source is being developed to facilitate on-board validation measurements of airborne remote backscatter lidar. Currently, commercial nephelometers utilized for in-situ validation measurements employ wavelengths that are both not matched to the operational wavelengths and not at the 1800 angle used in near nadir remote sensing backscatter lidar systems. Uncertainties in the wavelength and angle dependence of the return signal make in-situ validation of the remote measurement difficult. The performance of remotely operated lidar systems will be greatly improved by the successful demonstration of an in-situ backscatter measurement with the proposed collinear three wavelength source.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
ADVR, Inc.	Lead Organization	Industry	Bozeman, Montana
Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia



A multi-wavelength seed derived laser for in situ validation of Airborne remote sensing instruments, Phase I

Table of Contents

A Multi-Wavelength Seed Derived Laser for In-Situ Validation of Airborne Remote Sensing Instruments, Phase I

Completed Technology Project (2015 - 2015)

Primary U.S. Work Locations	
Montana	Virginia

Project Transitions

June 2015: Project Start

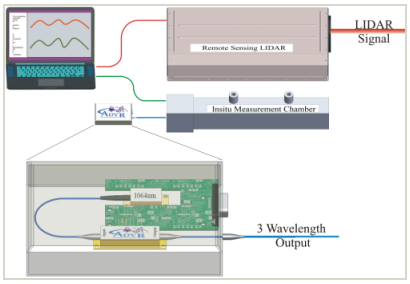
December 2015: Closed out

Closeout Summary: A multi-wavelength seed derived laser for in situ validatio n of Airborne remote sensing instruments, Phase I Project Image

Closeout Documentation:

- Final Summary Chart Image*(https://techport.nasa.gov/file/138740)*

Images



Briefing Chart Image
A multi-wavelength seed derived laser for in situ validation of Airborne remote sensing instruments, Phase I *(https://techport.nasa.gov/image/128620)*

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
ADVR, Inc.

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

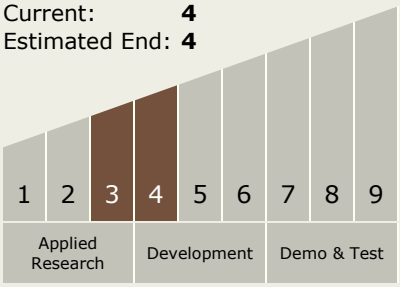
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Justin T Hawthorne

Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



A Multi-Wavelength Seed Derived Laser for In-Situ Validation of Airborne Remote Sensing Instruments, Phase I

Completed Technology Project (2015 - 2015)

Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.5 Lasers

Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System